

## **REMARKS**

### **Amendments**

The specification is amended to correct obvious typographical errors. Claim 1 is amended to incorporate the recitation of claims 2 and 3 (now cancelled). Method claims 4-23 are amended to use language in accordance with conventional US practice. Claim 4 is amended to refer to hot pelletization whereas new claim 38 recites cold pelletization. See the text bridging pages 7-8 of the specification. Claims 9 and 11 are amended to clarify the definition of the term "I/D". See pages 10 and 11 of the specification. Claim 19 is amended to depend from claim 18.

Product claims 25-31 and 33 are converted into method claims dependent directly or indirectly on claim 1, and they are amended to use language in accordance with conventional US practice.

Use claims 34-36 are converted into method of use claims in Jepson format.

New claims 39-45 are directed to further aspects of the invention and are supported throughout the disclosure. See, e.g., the paragraph bridging pages 13-14, and page 15, lines 3-8.

### **Withdrawn Claims**

The Examiner argues that the common technical feature is the manufacture of polyvinylacetal granulates and that such is taught by Lerman et al. Applicants' disagree.

With respect to the prior version of the claims, the common technical feature is the manufacture of polyvinylacetal granulates by a process wherein the polyvinylacetal-containing composition is converted into a molten state and then granulated. Lerman et al. do not teach or suggest such as process. Moreover, with respect to the present claims, the common technical feature is the manufacture of polyvinylacetal granulates by a process comprising converting a polyvinylacetal-containing composition into a molten state by heating to 100 to 340 °C in a single or double screw extruder, and granulating the resultant material to the desired particle sizes. Lerman et al. do not teach or suggest such as process.

Withdrawal of the Restriction Requirement is respectfully requested.

### **Objection to the Specification**

The specification is amended at page 10 to correct the spelling of screw. Withdrawal of the objection is respectfully requested.

### **Objection to the Claims**

Claim 4 is amended above to refer to hot pelletization. Cold pelletization is recited in new claim 38. See text bridging pages 7-8 of the specification. Withdrawal of the objection is respectfully requested.

### **Rejection under 35 USC 112, second paragraph**

Claims 1, 9, 10, and 11 are rejected under 35 USC 112, second paragraph. This rejection is respectfully traversed.

Claim 1 is not rendered indefinite by reciting “the molten state” as one of ordinary skill in the art would readily understand the meaning of the molten state of a polymer composition, even if there is no express antecedent basis, just one would understand a reference to the solid state of a polymer. In any event, claim 1 is amended to refer to “a molten state.” Claim 1, as amended, also provides express antecedent basis for the recitations of the extruder and screws in claims 9 and 10. Additionally, claims 9 and 11 are amended to clarify the term “L/D.”

Withdrawal of the rejection is respectfully requested.

### **Rejection under 35 USC 102(b)**

Claims 1-3 and 5 are rejected under 35 USC 102(b) as allegedly being anticipated by the disclosure of Lerman et al. (US 3,472,801). This rejection is respectfully traversed.

Contrary to the assertion in the rejection, the disclosure of Lerman et al. fails to anticipate applicants’ claimed invention as recited in original claim 1. To establish anticipation, the reference must disclose an embodiment exhibiting each any every element of the claimed invention. Mere disclosure of a generic concept does not establish anticipation.

Lerman et al. disclose a process for forming foamed spherical particles of thermoplastic polymer. Lerman et al. disclose that the polymer can be selected from a broad generic class of materials. See column 3, line 72 – column 4, line 15. Such a genus does not

establish anticipation. Furthermore, all of the Examples disclosed by Lerman et al. employ polyethylene and ethylene- acetate, not a polyvinylacetal. Thus, the disclosure of Lerman et al. does not anticipate applicants' original claim 1.

In addition, Lerman et al. does not disclose a process involving converting a granulate containing at least one polyvinylacetal into a molten state, and then granulating to the desired particle sizes. In the process of Lerman et al. a granular, powdered, or extruded polymer containing a blowing agent is melted and dispersed in a liquid. This dispersion is then further heated to expand or foam the melted particle with spherizing and possible coalescence. Then, while still in a dispersed state, the particles are cooled, collected, and separated from dispersion medium. See column 2, lines 24-65, and the Examples. Thus, in the process of Lerman et al. the already formed granulates are melted and then expanded. There is no granulation performed after the described melting step.

Lerman et al. do refer to granulation at column 6, lines 13-15. However, this granulation refers to the formation of the granules or particles prior to the melting step of the Lerman et al. process. Specifically, at column 5, line 60 – column 6, line 15, Lerman et al. disclose combining polymer particles with a blowing agent. In particular, Lerman et al. disclose that:

Satisfactory degrees of mixing dry ingredients can be readily accomplished by mechanical means, such as tumbling, air agitation, dry spraying, and the like. The resultant mixture is a homogeneous, free flowing powder, ready for melting with heat into a relative uniform blend.

Lerman et al. at column 6, lines 5-15 also describe incorporating the blowing agent into the polymer material by mixing using, for example, a screw extruder and controlling temperature to aid in blending the blowing agent and polymer in a manner gas generation is avoided. Thereafter, the blended material can be subjected to conventional granulation methods.

For the reasons stated above, it is respectfully submitted that the Lerman et al. disclosure does not anticipate applicants' claimed invention as recited in original claim 1.

In any event, in order to further emphasize, the novelty and non-obviousness of applicants' process, claim 1 is amended above to incorporate the recitation of the temperature range from claim 2 and the recitation of the use of a single or double screw extruder from claim 3.

In the rejection, it is asserted that Lerman et al. at disclose using a conventional screw extruder. As noted above, Lerman et al. at do disclose using a conventional screw extruder at column 6, lines 5-15. However, the screw extruder is used by Lerman et al. to blend polymer particles and blowing agent, not to form molten polymer and then subject the molten polymer to granulation.

Additionally, in the rejection it is argued that Lerman et al. disclose a processing temperature of 200° – 500° F. At column 6, lines 15-25, Lerman et al. disclose that the foaming temperature should be above the melting temperature of the polymer. Specifically, Lerman et al. disclose that a foaming temperature of generally from about 200° to 500° F is used. This temperature thus refers to a temperature in the process that is achieved after any granulation step and even after the step of melting the dispersed polymer particles. It does not refer to a temperature used in the blending of the blowing agent and polymer, and does not refer to a temperature employed during the use of a screw extruder.

In view of the above remarks, it is respectfully submitted that the disclosure of Lerman et al. fails to describe each and every element of applicants' claimed process. Thus, Lerman et al. fails to anticipate applicants' claimed invention. Furthermore, the disclosure of Lerman et al. provides no rationale for modifying the process described therein in such a manner as to arrive at applicants' claimed process. Thus, Lerman et al. also fails to render obvious applicants' claimed invention.

Withdrawal of the anticipation rejection in view of the disclosure of Lerman et al. is respectfully requested.

**Rejection under 35 USC 103(a) in view of Lerman et al.**

Claims 4, 13, and 22 are rejected under 35 USC 103(a) as allegedly being obvious in view of Lerman et al. (US 3,472,801). This rejection is respectfully traversed.

As discussed above, the disclosure of Lerman et al. fails to disclose or suggest a method for manufacturing of a granulate from a polyvinylacetal-containing composition by converting the composition into a molten state, by heating to 100 to 340 °C in a single or double screw extruder, and then granulating the resultant material.

In the rejection, it is argued that Lerman et al. disclose that after extrusion the polymer can be granulated by conventional method. However, as noted above, this granulation

procedure would be performed before the polymer composition is melted.

In addition, it is asserted in the rejection that “Lerman discloses that any resin could be used,” and thus it would be allegedly obvious to use a resin comprising 95 wt% polyvinylacetal. However, mere disclosure of a broad genus does not render obvious every embodiment encompassed therein. See, e.g., the non-precedential opinion rendered by the Board in *Ex Parte Rozzi*, 63 USPQ2d 1196 (POBA 2002), wherein the Board stated:

The Examiner does not make out a case of obviousness merely by virtue of the fact that that the subject matter of a rejected claim is, to use the examiner’s words, “generically” described by the prior art.

In any event, as discussed previously, the disclosure of Lerman et al. fails to render obvious applicants’ claimed invention. Withdrawal of the rejection is respectfully requested.

**Rejection under 35 USC 103(a) in view of Lerman et al. and Applicants’ Admission**

Claims 6-8, 12, and 23 are rejected under 35 USC 103(a) as allegedly being obvious in view of Lerman et al. (US 3,472,801) and the asserted admission in the specification at page 10, lines 24-29. This rejection is respectfully traversed.

As discussed above, the disclosure of Lerman et al. fails to disclose or suggest a method for manufacturing of a granulate from a polyvinylacetal-containing composition by converting the composition into a molten state, by heating to 100 to 340 °C in a single or double screw extruder, and then granulating the resultant material.

In the rejection, it is asserted that applicants have admitted that it is known to transfer polyvinylacetal composition into an extruder via a side stream inlet, citing page 10, lines 24-29. This assertion is incorrect.

At page 10, lines 24-29 of the specification, applicants disclose that side stream channels are known for usually introducing additives into a melt. This portion of the disclosure **does not state that** in making granulates from a polyvinylacetal-containing composition it is known in the art to introduce the polyvinylacetal-containing composition into a screw extruder via a side stream inlet.

As for the assertion in the rejection that Lerman et al. discloses using any resin, as noted above, mere disclosure of a broad genus does not render obvious every embodiment encompassed therein.

Additionally, in the rejection it is asserted that it is well known to keep an inlet section of for introducing resin at a lower temperature than the melt temperature. No support is presented for this conclusion. The rejection cites no reference that suggests actively cooling a side stream inlet of a screw extruder.

In view of the above remarks, it is respectfully submitted that Lerman et al. fail to render obvious applicants' claimed invention. Withdrawal of the rejection is respectfully requested.

**Rejection under 35 USC 103(a) in view of Lerman et al. and Rosato**

Claims 9-11 and 14-16 are rejected under 35 USC 103(a) as allegedly being obvious in view of Lerman et al. (US 3,472,801) and the excerpt from Rosato. This rejection is respectfully traversed.

As discussed above, the disclosure of Lerman et al. fails to disclose or suggest a method for manufacturing of a granulate from a polyvinylacetal-containing composition by converting the composition into a molten state, by heating to 100 to 340 °C in a single or double screw extruder, and then granulating the resultant material.

The rejection relies on the disclosure of Rosato with regards to cooling an extruder screw. However, to establish obviousness, it is not sufficient to indicate prior art disclosures describe the means for performing a certain method step. Instead, there must be presented a rationale as to why one skilled in the art would modify the process of the primary reference to incorporate the use of such a means. In the instant case, the rejection merely argues that it would be obvious to modify the process of Lerman et al. but does not explain why one would modify the process.

In the rejection, it is asserted that Lerman et al. disclose that the temperature is increased during the conversion into the molten state. However, the Lerman et al. does not disclose increasing the temperature in the screw extruder. At column 6, lines 5-15 reference is made to controlling the temperature as opposed to increasing it. Furthermore, as noted previously, in the Lerman et al. process conversion into the molten state occurs after extrusion.

In the rejection it is asserted that if no feed material is present in the feed port, then venting through the entry port will occur. This assertion, however, assumes the features of

the claim. Applicants method in claim 16 provides conditions whereby venting will occur through the entry port. But, the rejection presents no rationale as to why one of ordinary skill in the art would provide conditions, such as a lack of feed material in the entry port, so as to permit venting main entry port of the screw extruder.

In view of the above remarks, it is respectfully submitted that Lerman et al., taken alone or in combination with the disclosure in the excerpt by Rosato, fail to render obvious applicants' claimed invention. Withdrawal of the rejection is respectfully requested.

**Rejection under 35 USC 103(a) in view of Lerman et al., Applicants' Admission, and Nachtergaele**

Claims 17-20 are rejected under 35 USC 103(a) as allegedly being obvious in view of Lerman et al. (US 3,472,801), applicants' admitted prior art, and Nachtergaele (US 5,032,337). This rejection is respectfully traversed.

The disclosure of Lerman et al. is discussed above. Nachtergaele disclose a process for making a mixture of starch and polyvinyl alcohol wherein the resultant mixture is s soluble in cold water. In the process, 50 to 95 parts by weight starch and 5 to 50 parts by weight polyvinyl alcohol are thoroughly mixed, the moisture content is regulated between 10-25 wt %, and the mixture is subjected to a thermo-mechanical treatment at a temperature situated between 110° and 180° C during which the mixture is subjected to shearing forces. The thermo-mechanical treatment can be an extrusion.

At column 3, lines 24-34, Nachtergaele disclose that a suitable extrusion apparatus is an extruder having a capacity of 18 kg of product per hour, a length diameter ratio of 7, a dosing screw which rotates at 13 revolutions per minute, and an extrusion screw which rotates at 97 revolutions per minute.

Nachtergaele disclose that extruders are known that have dosing screws. However, the rejection does not explain why one would modify the process of Lerman et al. so as to use a dosing screw. For example, the rejection does not explain what function the dosing screw would perform in the process of Lerman et al. and why it would be obvious to use a dosing screw rather than the means disclosed by Lerman et al.

In any event, Nachtergaele provides no suggestion that would lead one of ordinary skill in the art to modify the process of Lerman et al. so as to arrive at a process wherein a

polyvinylacetal-containing composition is converted into a molten state by heating to 100 to 340 °C in a single or double screw extruder, and then granulating the resultant material.

In view of the above remarks, it is respectfully submitted that Lerman et al., taken alone or in combination with the disclosure by Nachtergaele, fail to render obvious applicants' claimed invention. Withdrawal of the rejection is respectfully requested.

**Rejection under 35 USC 103(a) in view of Lerman et al. and Miyake et al.**

Claim 21 is rejected under 35 USC 103(a) as allegedly being obvious in view of Lerman et al. (US 3,472,801) and Miyake et al. (US 2003/010936). This rejection is respectfully traversed.

The disclosure of Lerman et al. is discussed above. The disclosure of Miyake et al. is relied on for a teaching of a polyvinylacetal having a glass transition temperature of 55 -110 °C.

In any event, Miyake et al. provide no suggestion that would lead one of ordinary skill in the art to modify the process of Lerman et al. so as to arrive at a process wherein a polyvinylacetal-containing composition is converted into a molten state by heating to 100 to 340 °C in a single or double screw extruder, and then granulating the resultant material.

In view of the above remarks, it is respectfully submitted that Lerman et al., taken alone or in combination with the disclosure by Miyake et al., fail to render obvious applicants' claimed invention. Withdrawal of the rejection is respectfully requested.

The Commissioner is hereby authorized to charge any fees associated with this response or credit any overpayment to Deposit Account No. 13-3402.

Respectfully submitted,

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